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Technical Memo

To: Matthew Zerafa, Shell International Exploration and Production, Inc.

From: M. John Thompson, Continental Shelf Associates, Inc.

Date: 5 March 2004

Subject: Environmental benefits to the Gulf Landing liquefied natural gas (LNG) terminal arising from reasonably foreseeable improvements in LNG carrier (LNGC) design

The Environmental Review (ER) prepared for the Gulf Landing Deepwater Port license application is based on the utilization of an LNGC fleet with a capacity ranging from 125,000 to 150,000 cubic meters of LNG. Utilizing a carrier fleet in this size range, 135 deliveries per year are projected for the Gulf Landing terminal.

While vessels with LNG carrying capacities greater than 150,000 cubic meters do not currently exist, plans are being developed for LNGCs with carrying capacities of up to 200,000 cubic meters. Such an increase in the carrying capacity is a foreseeable technological advance that will come to fruition during the life expectancy of the Gulf Landing LNG terminal.

No changes in the currently designed footprint or above water structure of Gulf Landing would be required to handle these larger vessels. The only direct impact from utilizing these larger LNGCs at the proposed terminal would be a reduction in the number of deliveries required per year for the terminal to maintain its desired natural gas output to the mainland. Reduced numbers of vessels unloading at Gulf Landing per year would have a significant quantifiable impact on the air emissions associated with the terminal.

Table 1 summarizes air emissions from Gulf Landing under 1) the current delivery schedule of 135 deliveries per year, 2) a mixed fleet made up of 50% existing carriers and 50% new larger carriers requiring 108 deliveries per year, and 3) a total fleet of the large, 200,000 cubic meters carriers requiring only 90 deliveries per year. **Tables 2, 3, and 4** present the entire spectrum of air emissions projected for the Gulf Landing terminal under each of these possible delivery scenarios.

Reductions in the number of LNGCs visiting the terminal also would reduce the risk of vessel accidents and spills, the potential impacts to marine mammals and endangered species, and the cumulative impacts of tanker traffic in the Gulf of Mexico. Reductions in the number of deliveries required per year also would reduce the number of trips the terminal-associated tug boats would be required to make from their shorebase to the terminal. This in turn would reduce their risk of accidents and possible interactions with marine mammals or endangered species. Cumulative impacts from tug and small boat operations in near shore waters and coastal areas also would be reduced.

Table 1. Total air emissions from Gulf Landing LNG terminal based on 135, 108, and 90 deliveries per year.

Projected Number of Deliveries	Estimated Total Emissions (Tons per Year)				
	PM	SO _x	NO _x	VOC	CO
135 ¹	30.48	117.09	895.08	30.36	200.06
108	24.65	94.43	721.56	24.48	161.15
90	20.83	79.43	606.58	20.59	135.33

¹ Delivery scenario described in the Gulf Landing ER.

GULF OF MEXICO AIR EMISSION CALCULATIONS INSTRUCTIONS

General

This document (DOCD_AQ.XLS) was prepared through the cooperative efforts of those professionals in the oil industry including the API/OOC Gulf of Mexico Air Quality Task Force, and the Minerals Management service (MMS), who deal with air emission issues. This document is intended to standardize the way we estimate our potential air emissions for Development Operations Coordination Documents (DOCD) approved by the Minerals Management Service (MMS). It is intended to be thorough but flexible to meet the needs of different operators. This first file gives the basis for the emission factors used in the emission spreadsheet as well as some general instructions.

The following files, Title Sheet, Factors Sheet, Emissions Spreadsheet, and Summary Sheet will describe and calculate emissions from an activity.

Title Sheet

1. The Title Sheet requires input of the company's name, area, block, OCS-G number, platform and/or well(s) in the necessary lines. This data will automatically be transferred to the spreadsheet and summary sheet.
2. Answer the screening questions by indicating yes or no in the correct column. If all of the questions are answered no, fill in the information about your lease term pipelines in the block immediately below the screening questions and then submit just the title sheet with your DOCD; you do not need to complete the rest of the spreadsheets. If you answer yes to any of the screening questions, you need to prepare and submit a full set of spreadsheets. In either case you do not need to print and submit these instructions.

Factor Sheet

The emission factors were compiled from the latest AP-42 references or from industry studies if no AP-42 reference was available. Factors can be revised as more data becomes available. A change to this Factor Sheet will be automatically changed in Emission Spreadsheet. A sulfur content table was added in 1996. A change in this table will automatically revise the SOx factor which will revise emissions.

The basis for the factors is as follows:

1. NG Turbines Fuel usage scf/hr = HP X 9.524 (10,000 btu/HP-hr / 1050 btu/scf)
2. NG Engines Fuel usage scf/hr = HP X 7.143 (7,500 btu/HP-hr / 1050 btu/scf)
3. Diesel Fuel usage gals/hr = HP X 0.0483 (7,000 btu/HP-hr / 145,000 btu/gal)

Emission Factors

Natural Gas Prime Movers

1. TNMOC refers to total non-methane organic carbon emissions and these can be assumed equivalent to VOC emissions.
2. The sulfur content assumed is 2000 grains /mmscf (3.33 ppm). If your concentration is different then revise the ppm in the sulfur table immediately below the factors table.

Diesel-Fired Prime Movers

1. Diesel sulfur level 0.4% by wt. If your sulfur content is different change % wt. in the sulfur table.
2. For boats use > 600 HP factors based on AP-42 Vol. II, Table II-3-3.
Those figures closely match the above values. Include the emissions from all vessels associated with your activities for their time of operation within a 25 mile radius of your facility.
3. For diesel engines <600 HP VOC emissions equal total HC emissions; for diesel engines>600 HP VOC emissions equal non-methane HC emissions.

Heaters/Boilers/Firetubes/NG-Fired

1. The assumed NG Sulfur content is 2000 gr. per mcf(3.33 ppm). You may revise the sulfur content by changing the ppm in the sulfur table, if your content is different.
2. The VOCs emissions are based on total non-methane HCs.

Gas Flares

1. It is assumed that the flare is non-smoking.
2. A heating value of 1050 btu/cu. ft. for NG is assumed.
3. The sulfur content assumed is 2000 grains /mmscf (3.33 ppm). If your concentration is different then revise the ppm in the sulfur table, or you may use the following formula:

$$\text{H}_2\text{S flared (lbs/hr)} = \text{Gas flared (cu ft/hr)} \times \text{ppm H}_2\text{S} \times 34/(379 \times 1000000)$$

$$\text{SOx emis (lbs/hr)} = \text{H}_2\text{S flared (lbs/hr)} \times 64/34$$

Liquid Flares

1. Assumes 1% by wt Sulfur maximum in the crude oil. Revise the percent sulfur in the sulfur table if your value is different.
2. VOCs equal non-methane HCs
3. Particulate emissions assumes Grade 5 oil.

Tanks

1. Tank emissions assumes uncontrolled fixed roof tank.
2. The EPA TANKS model is an acceptable alternative. If you use TANKS you must provide sufficient information for MMS to verify your results.

Fugitives

1. Fugitives are based on the 1995 Star Environmental Report. It requires that you count or estimate your components. The factor is based on average leak rate for light oil / gas facility.

Glycol Dehydrator Vent

1. The rate of the gas being dehydrated (throughput) in SCF/HR must be entered in the spreadsheet. The emission factor is from the compilation of the Louisiana Survey and an average emissions per gas rate.

Gas Venting

1. The emission factor is based on venting unburned natural gas of average weight.

Emissions Spreadsheets (EMISSIONS1 through EMISSIONS5)

The emissions from an operation should be presented for a calendar year (1999, 2000, etc.). The operation may include production only or production in conjunction with other activities such as drilling or construction operations. For additional years the Emissions Spreadsheet is renamed Emissions 2, 3, etc. The different operating parameters for each year should be entered to calculate revised emissions for that year. The spreadsheet will calculate maximum fuel usage (UNIT/HR) using the known horsepower. It will assume maximum fuel usage is equal to actual fuel (UNIT/DAY) usage unless the actual fuel usage is known. If so, insert actual fuel usage in appropriate column. The emissions will be calculated as follows:

$$\text{Emission rate (lb/hr)} = (\text{HP or fuel rate}) \times \text{Emission Factor} \quad (\text{Potential to emit})$$

$$\text{Emissions (tpy)} = \text{Emission rate (lb/hr)} \times \text{load factor} (\text{Act Fuel/Max Fuel}) \times \text{hrs} \times \text{days} \times \text{ton/2000 lbs} \quad (\text{Actual emissions})$$

To customize the spreadsheet for your application it is possible to delete lines for non-applicable

Also, the production equipment can be customized further by adding the use of the equipment behind each type of engine, i.e.,

Turbine

Turbine - Gas Compressor

Burner

Burner - Line Heater

Summary Sheet

The Summary Sheet is designed to show a proposed estimate of emissions from an activity over a future period of time. In this example ten years was chosen. The first line (Row 7) of the summary sheet is linked to the yearly totals in the Emissions1 Spreadsheet. The second line (Row 8) is referenced to Emissions2 Spreadsheet. The third line (Row 9) is referenced to Emissions3, Row 10 to Emissions 4, Row 11 to Emissions 5. If more years of calculations are necessary to reach a constant then a spreadsheet can be copied and linked to the summary sheet for future years. Once emissions are constant the values are carried to the end of the ten year period.

The Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35) requires us to inform you that MMS collects this information as part of an applicant's DOCD submitted for MMS approval. We use the information to facilitate our review and data entry for OCS plans. We will protect proprietary data according to the Freedom of Information Act and 30 CFR 250.196. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number. Responses are mandatory. The reporting burden for this form is included in the burden for preparing DOCDs. We estimate that burden to average 580 hours per response, including the time for reviewing instructions, gathering and maintaining the data, and completing and reviewing the form. Direct comments on the burden estimate or any other aspect of this form to the Information Collection Clearance Office, Mail Stop 4230, Minerals Management Service, 1849 C Street, N. W., Washington, DC 20240.

DOCD AIR QUALITY SCREENING CHECKLIST

OMB Control No. 1010-0049

OMB Approval Expires: September 30, 2003

COMPANY	Shell Gulf Landing LNG Receiving Terminal
AREA	West Cameron
BLOCK	213
LEASE	
PLATFORM	
WELL	
COMPANY CONTACT	
TELEPHONE NO.	
REMARKS	

"Yes"	"No"	Air Quality Screening Questions
	X	1. Is the concentration of H ₂ S expected greater than 20 ppm?
	X	2. Is the burning of produced liquids proposed?
	X	3. Is gas flaring or venting which would require Regional Supervisor of Production and Development approval under Subpart K proposed?
	X	4. Does the facility process production from 8 or more active wells?
	X	5. Is the facility within 200km of the Breton Area?
	X	6. Will the proposed activity be collocated at (same surface location), or bridge attached to, a previously approved facility?
	X	7. Is the proposed activity within 25 miles of shore?
	X	8. Are semi-submersible activities involved and is the facility within 75 miles of shore?
	X	9. Are drillship operations involved and is the facility within 145 miles of shore?

If ALL questions are answered "No":

Fill in the information below about your lease term pipelines and submit only this coversheet with your plan.

If ANY question is answered "Yes":

Prepare and submit a full set of spreadsheets with your plan.

LEASE TERM PIPELINE CONSTRUCTION INFORMATION:

YEAR	NUMBER OF PIPELINES	TOTAL NUMBER OF CONSTRUCTION DAYS
1999		
2000		
2001		
2002		
2003		
2004		
2005		
2006		
2007		
2008		
2009		

AIR EMISSION COMPUTATION FACTORS

Fuel Usage Conversion Factors	Natural Gas Turbines	Natural Gas Engines	Diesel Recip. Engine	REF.	DATE		
	SCF/hp-hr	9.524	SCF/hp-hr	7.143	GAL/hp-hr	0.0483	AP42 3.2-1

Equipment/Emission Factors	Units	PM	SOx	NOx	VOC	CO	REF.	DATE
NG Turbines	gms/hp-hr		0.00247	1.3	0.01	0.83	AP42 3.2-1& 3.1-1	10/96
NG 2-cycle lean	gms/hp-hr		0.00185	10.9	0.43	1.5	AP42 3.2-1	10/96
NG 4-cycle lean	gms/hp-hr		0.00185	11.8	0.72	1.6	AP42 3.2-1	10/96
NG 4-cycle rich	gms/hp-hr		0.00185	10	0.14	8.6	AP42 3.2-1	10/96
Diesel Recip. < 600 hp.	gms/hp-hr	1	1.468	14	1.12	3.03	AP42 3.3-1	10/96
Diesel Recip. > 600 hp.	gms/hp-hr	0.32	1.468	11	0.33	2.4	AP42 3.4-1	10/96
Diesel Boiler	lbs/bbl	0.084	2.42	0.84	0.008	0.21	AP42 1.3-12,14	9/98
NG Heaters/Boilers/Burners	lbs/mmscf	7.6	0.593	100	5.5	84	P42 1.4-1, 14-2, & 14	7/98
NG Flares	lbs/mmscf		0.593	71.4	60.3	388.5	AP42 11.5-1	9/91
Liquid Flaring	lbs/bbl	0.42	6.83	2	0.01	0.21	AP42 1.3-1 & 1.3-3	9/98
Tank Vapors	lbs/bbl				0.03		E&P Forum	1/93
Fugitives	lbs/hr/comp.				0.0005		API Study	12/93
Glycol Dehydrator Vent	lbs/mmscf				6.6		La. DEQ	1991
Gas Venting	lbs/scf				0.0034			

Sulfur Content Source	Value	Units
Fuel Gas	3.33	ppm
Diesel Fuel	0.4	% weight
Produced Gas (Flares)	3.33	ppm
Produced Oil (Liquid Flaring)	1	% weight

LNG Tanker Steam Turbine ¹	NOx	VOC	CO	SOx ²	PM	Units	Fuel Consumption (GAL/hr)
Hotelling (700 liters/hr)	3.06	0.27	0	0.61	0.84	kg/hr	185
Maneuver (3,850 liters/hr)	25.8	0.32	1.59	3.31	9.24	kg/hr	1017
Full Power (7,000 liters/hr)	53.41	1.44	6.1	6.01	47.46	kg/hr	1849

¹ Reference: Gulf of Mexico Air Quality Study, Final Report, Volume III: Inventory Preparation, Appendices N-P, OCS Study MMS 95-0040, Table C-1, page N-89.

² Assuming 4.5% sulfur in heavy residual fuel oil

Table 2. Annual air emissions from the Gulf Landing LNG terminal facilities based on 135 deliveries per year (base case presented in the Gulf Landing Environmental Review.)

TABLE 2
AIR EMISSIONS CALCULATIONS - SECOND YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT			PHONE	REMARKS						
							MAX. FUEL	ACT. FUEL	RUN TIME	MAXIMUM POUNDS PER HOUR			ESTIMATED TONS	REFI			
OPERATIONS	EQUIPMENT	HP	GAL/HR	GAL/HR	SCF/HR	SCF/HR	MMBTU/HR	MMBTU/HR	HR/D	DAYS	PM	SOx	NOx	VOC	CO		
	Diesel Engines	HP	GAL/HR	GAL/HR	SCF/HR	SCF/HR	MMBTU/HR	MMBTU/HR	SCF/HR	SCF/HR							
	Nat. Gas Engines	HP	SCF/HR	SCF/HR													
DRILLING	PRIME MOVER>600hp diesel	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0	0	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP>600hp diesel	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSEL S>600hp diesel(crew)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSEL S>600hp diesel(supply)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSEL S>600hp diesel(tugs)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline Installation	Pipeline Lay BARGE diesel	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Pipeline Bury BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSEL S>600hp diesel(crew)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSEL S>600hp diesel(supply)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Facility Installation	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSEL S>600hp diesel(crew)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Production	RECIP.<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP.>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TURBINE nat. gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP. 2 cycle lean nat. gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP. 4 cycle lean nat. gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP. 4 cycle rich nat. gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Misc.	TANK-	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	FLARE-	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PROCESS VENT-	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	FUGITIVES-	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	GLYCOL STILL VENT-	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling	OIL BURN	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	GAS FLARE	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2004 YEAR TOTAL						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exemption Calculation	DISTANCE FROM LAND IN MILES	0.0															

Table 2
AIR EMISSIONS CALCULATIONS - THIRD YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL	RUN TIME	MAX. FUEL ACT. FUEL	CONTACT	PHONE	REMARKS	#REF!	ESTIMATED TONS																
												RATING	HP	GAL/HR	GAL/D	SCF/HR	SCF/D	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	PM	SOx	CO	NOx	VOC	CO
OPERATIONS																												
DRILLING	Shell Gulf Landing LNG F	West Cameron	213																									
	EQUIPMENT																											
	Diesel Engines																											
	Nat. Gas Engines																											
DRILLING	PRIME MOVER>600hp diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	AUXILIARY EQUIP<600hp diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PIPELINE INSTALLATION	PIPELINE LAY BARGE diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PIPELINE BURY BARGE diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
FACILITY INSTALLATION	DERRICK BARGE diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MATERIAL TUG diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MATERIAL TUG diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PRODUCTION	RECIP.<600hp diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.>600hp diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TURBINE nat. gas		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.2 cycle lean nat. gas		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.4 cycle lean nat. gas		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.4 cycle rich nat. gas		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.4 cycle rich nat. gas		0	0.00	0	0	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MISC.	BPD		SCF/HR	COUNT								0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TANK-FLARE-			0	0	0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PROCESS VENT-FUGITIVES-				0	0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	GLYCOL STILL VENT-				0	0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DRILLING WELL TEST	OIL BURN GAS FLARE				0	0	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2005 YEAR TOTAL											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES											0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AIR EMISSIONS CALCULATIONS - FOURTH YEAR

TABLE 2
MISSIONS CALCULATIONS - FIFTH YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT		PHONE	REMARKS			
							EQUIPMENT	RATING	IMAX. FUEL	ACT. FUEL	RUN TIME	MAXIMUM POUNDS PER HOUR	ESTIMATED TONS
Shell Gulf Landing LNG	West Cameron	213											
OPERATIONS													
DRILLING	Diesel Engines	HP	SCF/HR	GAL/D									
	Nat Gas Engines	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAY/S	PM	SOx	NOx	VOC	PM	SOx	CO
	Burners						0.00	0.00	0.00	0.00	0.00	0.00	0.00
DRILLING	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP<600hp diesel	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(tugs)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipeline Installation	Pipeline Lay BARGE diesel	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Pipeline BURG BARGE diesel	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY INSTALLATION	DERRICK BARGE diesel	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MATERIAL TUG diesel	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION	RECIP<600hp diesel	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP>600hp diesel	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TURBINE nat gas	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP 2 cycle lean nat gas	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP 4 cycle lean nat gas	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP 4 cycle rich nat gas	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP 4 cycle super rich nat gas	0	0.00	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISC.	BPD	SCF/HR	COUNT										
	TANK-		0	0	0								
	FLARE-		0	0	0								
	PROCESS VENT-		0	0	0								
	FUGITIVES-		0.0	0	0								
	GLYCOL STILL VENT-		0	0	0								
DRILLING WELL TEST	OIL BURN GAS FLARE	0	0	0	0								
	2007 YEAR TOTAL						0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES											972.36	972.36
												972.36	972.36
												32240.43	32240.43

OMB Control No. xxxx-xxxx
Expiration Date: Pending

AIR EMISSION CALCULATIONS

TABLE 2

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL
Year	PM	SOx	NOx	VOC	CO
2003	30.48	117.09	895.08	30.36	200.06
2004	30.48	117.09	895.08	30.36	200.06
2005	30.48	117.09	895.08	30.36	200.06
2006	30.48	117.09	895.08	30.36	200.06
2007	30.48	117.09	895.08	30.36	200.06
2008	30.48	117.09	895.08	30.36	200.06
2009	30.48	117.09	895.08	30.36	200.06
2010	30.48	117.09	895.08	30.36	200.06
2011	30.48	117.09	895.08	30.36	200.06
2012	30.48	117.09	895.08	30.36	200.06
All allowable	1252.08	1252.08	1252.08	1252.08	38159.63

Table 3. Annual air emissions if Gulf Landing were serviced by a fleet composed of 50% smaller LNGCs and 50% larger LNGCs.

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS								
Shell Gulf Landing LNG F West Cameron		213															
OPERATIONS		EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME	MAXIMUM POUNDS PER HOUR				ESTIMATED TONS (Load Factors Applied)						
		Diesel Engines	HP	GAL/HR	GAL/D												
		Nat. Gas Engines	HP	SCF/HR	SCF/D												
		MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO	
MOBILE OPERATIONS																	
LNG CARRIER	LNGC Approach 90% vap., 10% RFO		89	84761.90	2034285.71	2	108	0.64	0.05	8.48	0.47	7.12	0.06	0.00	0.82	0.05	0.77
	LNGC Berthing 90% vap., 10% RFO		89	84761.90	2034285.71	3	108	0.64	0.05	8.48	0.47	7.12	0.09	0.01	1.24	0.07	1.15
	LNGC Unloading Prep 100% vap.		89	84761.90	2034285.71	2	108	0.64	0.05	8.48	0.47	7.12	0.06	0.00	0.82	0.05	0.77
	LNGC Unloading 100% RFO		34980	185	4440.00	15.25	108	1.85	1.34	6.73	0.59	0.00	1.52	1.11	5.54	0.49	0.00
	LNGC Departure Prep 100% vap.		89	84761.90	2034285.71	5	108	0.64	0.05	8.48	0.47	7.12	0.16	0.01	2.06	0.11	1.92
	LNGC to Pilot Station 90% vap., 10% RFO		89	84761.90	2034285.71	3	108	0.64	0.05	8.48	0.47	7.12	0.09	0.01	1.24	0.07	1.15
	LNGC Dismissed 90% vap., 10% RFO		89	84761.90	2034285.71	2	108	0.64	0.05	8.48	0.47	7.12	0.06	0.00	0.82	0.05	0.77
TUG BOATS		LNGC Approach															
Approach Facility	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (10% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.04	0.17	1.31	0.04	0.29
	Tug Boat >600hp diesel (10% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.04	0.17	1.31	0.04	0.29
	Tug Boat >600hp diesel (10% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.04	0.17	1.31	0.04	0.29
Idling	LNGC Berthing																
	Tug Boat >600hp diesel (50% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.19	0.87	6.54	0.20	1.43
	Tug Boat >600hp diesel (50% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.19	0.87	6.54	0.20	1.43
	Tug Boat >600hp diesel (75% load)		10000	483	11592.00	2	108	7.05	32.33	242.29	7.27	52.86	0.57	2.62	19.63	0.59	4.28
	Tug Boat >600hp diesel (75% load)		10000	483	11592.00	2	108	7.05	32.33	242.29	7.27	52.86	0.57	2.62	19.63	0.59	4.28
	Tug Boat >600hp diesel (75% load)		10000	483	11592.00	2	108	7.05	32.33	242.29	7.27	52.86	0.57	2.62	19.63	0.59	4.28
	Tug Boat >600hp diesel (10% load)		10000	483	11592.00	2	108	7.05	32.33	242.29	7.27	52.86	0.19	0.87	6.54	0.20	1.43
	LNGC Unloading Preparation																
Dismissed	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (10% load)		10000	483	11592.00	20.25	108	7.05	32.33	242.29	7.27	52.86	0.77	3.54	26.49	0.79	5.78
	LNGC Departure Preparation																
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
Standby	LNGC Unloading Preparation																
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (10% load)		10000	483	11592.00	20.25	108	7.05	32.33	242.29	7.27	52.86	0.77	3.54	26.49	0.79	5.78
	LNGC Departure Preparation																
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
Unberthing	LNGC Unloading Preparation																
	Tug Boat >600hp diesel (10% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.04	0.17	1.31	0.04	0.29
	Tug Boat >600hp diesel (10% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.04	0.17	1.31	0.04	0.29
	Tug Boat >600hp diesel (60% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.23	1.05	7.85	0.24	1.71
	Tug Boat >600hp diesel (60% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.23	1.05	7.85	0.24	1.71
	Tug Boat >600hp diesel (60% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.23	1.05	7.85	0.24	1.71
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat >600hp diesel (80% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
Dismissed	LNGC to Pilot Station																
	Tug Boat >600hp diesel (50% load)		10000	483	11592.00	1	108	7.05	32.33	242.29	7.27	52.86	0.19	0.87	6.54	0.20	1.43
	Tug Boat >600hp diesel (50% load)		10000	483	11592.00	4	108	7.05	32.33	242.29	7.27	52.86	1.22	5.59	41.87	1.26	9.13
	Tug Boat Essen. Gen.<600 hp		500	24.15	579.60	14	108	1.10	1.62	15.42	1.23	3.34	0.83	1.22	11.66	0.93	2.52
	Tug Boat Essen. Gen.<600 hp		500	24.15	579.60	14	108	1.10	1.62	15.42	1.23	3.34	0.83	1.22	11.66	0.93	2.52
	Tug Boat Essen. Gen.<600 hp		500	24.15	579.60	14	108	1.10	1.62	15.42	1.23	3.34	0.83	1.22	11.66	0.93	2.52
	Tug Boat Essen. Gen.<600 hp		500	24.15	579.60	14	108	1.10	1.62	15.42	1.23	3.34	0.83	1.22	11.66	0.93	2.52
	Supply Vessel >600hp diesel		3120	150.696	3616.70	6	52	2.20	10.09	75.59	2.27	16.49	0.34	1.57	11.79	0.35	2.57
	Sup.Vessel @Idle>600hp diesel		1040	50.232	1205.57	8	52	0.73	3.36	25.20	0.76	5.50	0.15	0.70	5.24	0.16	1.14
2003 YEAR TOTAL								217.46	959.27	7246.48	222.14	1611.10	24.65	94.43	721.86	24.48	161.16
EXEMPTION CALCULATION		DISTANCE FROM LAND IN MILES												1252.08	1252.08	1252.08	38159.63
		37.6															

TABLE 3
AIR EMISSIONS CALCULATIONS - SECOND YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS	#REF!	ESTIMATED TONS											
											MAX. FUEL ACT. FUEL		RUN TIME		MAXIMUM POUNDS PER HOUR		PM		SOx		NOx	
OPERATIONS	EQUIPMENT	RATING	HP	GAL/HR	GAL/D	SCF/HR	SCF/D	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
	Diesel Engines	HP	HP	GAL/HR	GAL/D	SCF/HR	SCF/D															
	Nat. Gas Engines	HP	HP	GAL/HR	GAL/D	SCF/HR	SCF/D															
	GENERATORS	MMBTU/HR	SCF/HR	SCF/D																		
DRILLING	PRIME MOVER>600hp diesel	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER diesel	0	0	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(tugs)	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PIPELINE INSTALLATION	PIPELINE LAY BARGE diesel	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PIPELINE BURY BARGE diesel	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
FACILITY INSTALLATION	DERRICK BARGE diesel	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MATERIAL TUG diesel	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PRODUCTION	RECIP.<600hp diesel	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.>600hp diesel	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TURBINE nat gas	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP. 2 cycle lean nat gas	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP. 4 cycle lean nat gas	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP. 4 cycle rich nat gas	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP. 4 cycle rich nat gas	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MISC.	BPD	SCF/HR	COUNT																			
	TANK-	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	FLARE-																					
	PROCESS VENT-																					
	FUGITIVES-																					
	GLYCOL STILL VENT-																					
DRILLING WELL TEST	OIL BURN GAS FLARE	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2004 YEAR TOTAL										0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES	0.0																				

TABLE 3
AIR EMISSIONS CALCULATIONS - THIRD YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS	#REF!						
Shell Gulf Landing LNG	West Cameron	213														
OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR					ESTIMATED TONS				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
		MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER diesel	0					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(tugs)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Pipeline Installation	PIPELINE LAY BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PIPELINE BURY BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Facility Installation	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PRODUCTION	RECIP.<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TURBINE nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.2 cycle lean nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.4 cycle lean nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.4 cycle rich nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MIISC.	BPD	SCF/HR	COUNT												
	TANK-	0			0	0										
	FLARE-		0		0	0										
	PROCESS VENT-		0		0	0										
	FUGITIVES-			0.0												
	GLYCOL STILL VENT-		0		0	0										
DRILLING WELL TEST	OIL BURN	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	GAS FLARE	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2005 YEAR TOTAL						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES															
	0.0															

TABLE 3
AIR EMISSIONS CALCULATIONS - FOURTH YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS							
Shell Gulf Landing LNG	West Cameron	213							#REF!							
OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR					ESTIMATED TONS				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	BURNERS	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER diesel	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(tugs)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PIPELINE INSTALLATION	PIPELINE LAY BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PIPELINE BURY BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
FACILITY INSTALLATION	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PRODUCTION	RECIP.<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TURBINE nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.2 cycle lean nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.4 cycle lean nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.4 cycle rich nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER natural gas	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MISC.	BPD	SCF/HR	COUNT												
DRILLING WELL TEST	TANK-	0			0	0										
	FLARE-		0		0	0										
	PROCESS VENT-		0		0	0										
	FUGITIVES-			0.0		0										
	GLYCOL STILL VENT-		0		0	0										
OIL BURN		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
GAS FLARE		0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2006 YEAR TOTAL							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES															
	0.0															

TABLE 3
AIR EMISSIONS CALCULATIONS - FIFTH YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS	#REF!						
Shell Gulf Landing LNG	West Cameron	213														
OPERATIONS	EQUIPMENT	RATING	MAX. FUEL	ACT. FUEL	RUN TIME		MAXIMUM POUNDS PER HOUR					ESTIMATED TONS				
	Diesel Engines	HP	GAL/HR	GAL/D												
	Nat. Gas Engines	HP	SCF/HR	SCF/D												
	BURNERS	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAYS	PM	SOx	NOx	VOC	CO	PM	SOx	NOx	VOC	CO
DRILLING	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER diesel	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	AUXILIARY EQUIP<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(tugs)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Pipeline Installation	PIPELINE LAY BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PIPELINE BURY BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
FACILITY INSTALLATION	DERRICK BARGE diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MATERIAL TUG diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PRODUCTION	RECIP.<600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.>600hp diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TURBINE nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.2 cycle lean nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.4 cycle lean nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.4 cycle rich nat gas	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER diesel	0	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MISC.	BPD	SCF/HR	COUNT												
	TANK-	0			0	0										
	FLARE-		0		0	0										
	PROCESS VENT-		0		0	0										
	FUGITIVES-			0.0		0										
	GLYCOL STILL VENT-		0		0	0										
DRILLING WELL TEST	OIL BURN	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	GAS FLARE	0			0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2007 YEAR TOTAL						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES	29.2										972.36	972.36	972.36	972.36	32240.43

TABLE 3
AIR EMISSION CALCULATIONS

OMB Control No. xxxx-xxxx
Expiration Date: Pending

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL
Shell Gulf Landi	West Cameron	213			
Year	Emitted			Substance	
	PM	SOx	NOx	VOC	CO
2003	24.65	94.43	721.56	24.48	161.15
2004	24.65	94.43	721.56	24.48	161.15
2005	24.65	94.43	721.56	24.48	161.15
2006	24.65	94.43	721.56	24.48	161.15
2007	24.65	94.43	721.56	24.48	161.15
2008	24.65	94.43	721.56	24.48	161.15
2009	24.65	94.43	721.56	24.48	161.15
2010	24.65	94.43	721.56	24.48	161.15
2011	24.65	94.43	721.56	24.48	161.15
2012	24.65	94.43	721.56	24.48	161.15
Allowable	1252.08	1252.08	1252.08	1252.08	38159.63

* **Table 4** Annual air emissions if Gulf Landing were serviced by a fleet composed entirely of larger LNGCs (200,000 cubic meter capacity).

TABLE 4
AIR EMISSIONS CALCULATIONS - SECOND YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL		CONTACT	PHONE	REMARKS	#REF!	ESTIMATED TONS						
											MAXIMUM POUNDS PER HOUR						
OPERATIONS	EQUIPMENT	HP	GAL/HR	SCF/HR	SCF/D	HR/D	DAY/S	PM	SOX	NOX	VOC	CO	PM	SOX	NOX	VOC	CO
	Diesel Engines	HP	SCF/HR	SCF/D	MMBTU/HR	MMBTU/HR	SCF/HR	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D
	Nat. Gas Engines	HP	SCF/HR	SCF/D	MMBTU/HR	MMBTU/HR	SCF/HR	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D	SCF/D
	Burner																
DRILLING	PRIME MOVER>600hp diesel	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	PRIME MOVER>600hp diesel	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BURNER diesel	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	AUXILIARY EQUIP<600hp diesel	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PIPELINE INSTALLATION	Pipeline Lay BARGE diesel	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Pipeline BURG BARGE diesel	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FACILITY INSTALLATION	DERRICK BARGE diesel	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MATERIAL TUG diesel	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(crew)	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	VESSELS>600hp diesel(supply)	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRODUCTION	RECIP.<600hp diesel	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP.>600hp diesel	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUPPORT VESSEL diesel	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TURBINE nat gas	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP 2 cycle lean nat gas	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP 4 cycle lean nat gas	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP 4 cycle rich nat gas	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	RECIP 4 cycle rich nat gas	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MISC.	BPD	SCF/HR	COUNT													
	TANK-FLARE-	0			0	0	0										
	PROCESS VENT-																
	FUGITIVES-																
	GLYCOL STILL VENT-																
	OIL BURN-																
	GAS FLARE																
	2004 YEAR TOTAL																
EXEMPTION	DISTANCE FROM LAND IN MILES	0.0															
CALCULATION																	

TABLE 4
AIR EMISSIONS CALCULATIONS - THIRD YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL			CONTACT	PHONE	REMARKS	#REF!	ESTIMATED TONS											
												MAXIMUM POUNDS PER HOUR											
	EQUIPMENT											RATING	MAX. FUEL	ACT. FUEL	RUN TIME	GAL/D	SCF/HR	SCF/D	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAY/S
Shell Gulf Landing Line F	West Cameron	213										HP	HP	SCF/HR	SCF/D	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAY/S	PM	SOx	CO
OPERATIONS																							
	Diesel Engines											HP	HP	SCF/HR	SCF/D	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAY/S	PM	SOx	CO
	Nat. Gas Engines																						
DRILLING												0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	AUXILIARY EQUIP<600hp diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(tugs)											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PIPELINE INSTALLATION												0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PIPELINE LAY BARGE diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PIPELINE BUR BARGE diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
FACILITY INSTALLATION												0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	DERRICK BARGE diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MATERIAL TUG diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PRODUCTION												0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP >600hp diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TURBINE nat gas											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP 2 cycle lean nat gas											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP 4 cycle lean nat gas											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP 4 cycle rich nat gas											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP 4 cycle rich nat gas											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MISC.												0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TANK-FLARE											0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	
	PROCESS VENT-FUGITIVES-											0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	
	GLYCOL STILL VENT-											0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	
	OIL BURN											0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	
	GAS FLARE											0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	
	2005 YEAR TOTAL											0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES											0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	

TABLE 4
AIR EMISSIONS CALCULATIONS - FOURTH YEAR

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL			CONTACT	PHONE	REMARKS	#REF!	MAXIMUM POUNDS PER HOUR								
												RATING	MAX. FUEL ACT. FUEL	RUN TIME						
OPERATIONS	EQUIPMENT	HP	GAJ/HR	GAJ/D	SCF/HR	SCF/D	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAY/S	PM	SOX	CO	PM	SOX	NOx	VOC	CO	
Shell Gulf Landing LNG R	West Cameron	213																		
DIESEL ENGINES	Diesel Engines	HP	GAJ/HR	GAJ/D	SCF/HR	SCF/D	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAY/S	PM	SOX	CO	PM	SOX	NOx	VOC	CO	
NAT. GAS ENGINES	Nat. Gas Engines	HP	GAJ/HR	GAJ/D	SCF/HR	SCF/D	MMBTU/HR	SCF/HR	SCF/D	HR/D	DAY/S	PM	SOX	CO	PM	SOX	NOx	VOC	CO	
DRILLING	PRIME MOVER>600hp diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	PRIME MOVER>600hp diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BURNER diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	AUXILIARY EQUIP<600hp diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(tugs)	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PIPELINE INSTALLATION	Pipeline Lay BARGE diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Support Vessel diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Pipeline Bury BARGE diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Support Vessel diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
FACILITY INSTALLATION	Derrick BARGE diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	MATERIAL TUG diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(crew)	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	VESSELS>600hp diesel(supply)	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PRODUCTION	RECIP.>600hp diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP.>600hp diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SUPPORT VESSEL diesel	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TURBINE nat gas	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP. 2 cycle lean nat gas	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP. 4 cycle lean nat gas	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP. 4 cycle rich nat gas	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	RECIP. 4 cycle rich nat gas	0	0.00	0	0	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MISC.	BPD SCF/HR COUNT																			
	TANK-FLARE-	0						0												
	PROCESS VENT-FUGITIVES-							0												
	GLYCOL STILL VENT-							0												
DRILLING WELL TEST	OIL BURN GAS FLARE	0						0												
	2006 YEAR TOTAL																			
EXEMPTION CALCULATION	DISTANCE FROM LAND IN MILES	0.0																		

TABLE 4
MISSIONS CALCULATIONS - FIFTH YEAR

TABLE 4
AIR EMISSION CALCULATIONS

OMB Control No. xxxx-xxxx
Expiration Date: Pending

COMPANY	AREA	BLOCK	LEASE	PLATFORM	WELL
Shell Gulf Landi	West Cameron	213			
Year	Emitted			Substance	
	PM	SOx	NOx	VOC	CO
2003	20.83	79.43	606.58	20.59	135.33
2004	20.83	79.43	606.58	20.59	135.33
2005	20.83	79.43	606.58	20.59	135.33
2006	20.83	79.43	606.58	20.59	135.33
2007	20.83	79.43	606.58	20.59	135.33
2008	20.83	79.43	606.58	20.59	135.33
2009	20.83	79.43	606.58	20.59	135.33
2010	20.83	79.43	606.58	20.59	135.33
2011	20.83	79.43	606.58	20.59	135.33
2012	20.83	79.43	606.58	20.59	135.33
Allowable	1252.08	1252.08	1252.08	1252.08	38159.63